



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76011-4125

May 13, 2011

Mr. John T. Conway  
Senior Vice President and  
Chief Nuclear Officer  
Pacific Gas and Electric Company  
77 Beale Street, B32  
San Francisco, CA 94105

Subject: DIABLO CANYON POWER PLANT - NRC TEMPORARY  
INSTRUCTION 2515/183 INSPECTION REPORT 05000275/2011006 AND  
05000323/2011006

Dear Mr. Conway:

On April 26, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Diablo Canyon Power Plant, using Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The enclosed inspection report documents the inspection results which were discussed on April 26, 2011, with Mr. J. Becker, Site Vice President, and other members of your staff.

The objective of this inspection was to assess the adequacy of actions taken at Diablo Canyon Power Plant in response to the Fukushima Daiichi Nuclear Station fuel damage event. The results from this inspection, along with the results from similar inspections at other operating commercial nuclear plants in the United States, will be used to evaluate the United States nuclear industry's readiness to respond to a similar event. These results will also help the NRC to determine if additional regulatory actions are warranted.

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report. You are not required to respond to this letter.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Geoffrey B. Miller, Chief  
Project Branch B  
Division of Reactor Projects

Docket: 50-275  
50-323

License: DPR-80  
DPR-82

Enclosure: NRC Inspection Report 05000275/2011006  
and 05000323/2011006  
w/Attachment: Supplemental Information

cc w/Enclosure:

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000275, 05000323

License: DPR-80, DPR-82

Report: 05000275/2011006  
05000323/2011006

Licensee: Pacific Gas and Electric Company

Facility: Diablo Canyon Power Plant, Units 1 and 2

Location: 7 ½ miles NW of Avila Beach  
Avila Beach, California

Dates: March 23 through April 26, 2011

Inspector: M. Peck, Senior Resident Inspector

Approved By: Geoffrey B. Miller, Chief, Project Branch B  
Division of Reactor Projects

## **SUMMARY OF FINDINGS**

IR 05000275/2011006, 05000323/2011006, 03/23/2011 – 04/26/2011; Diablo Canyon Power Plant, Temporary Instruction 2515/183 - Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event.

This report covers an announced temporary instruction inspection. The inspection was conducted by resident and Region IV inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

## **INSPECTION SCOPE**

The intent of the temporary instruction is to be a high-level look at the industry's preparedness for events that may exceed the design basis for a plant. The focus of the temporary instruction was on (1) assessing the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats; (2) assessing the licensee's capability to mitigate station blackout conditions; (3) assessing the licensee's capability to mitigate internal and external flooding events required by station design; and (4) assessing the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. If necessary, a more specific followup inspection will be performed at a later date.

## **INSPECTION RESULTS**

The following table documents the NRC inspection at Diablo Canyon Power Plant performed in accordance with Temporary Instruction 2515/183. The numbering system in the table corresponds to the inspection items in the temporary instruction.

**03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 CFR 50.54(hh). Use Inspection Procedure 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If Inspection Procedure 71111.05T was recently performed at the facility the inspector should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:**

Licensee Action	Describe what the licensee did to test or inspect equipment.
<p>a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Pacific Gas and Electric completed walkdowns of the extreme damage mitigation guidelines; procedures used to mitigate events described in B.5.b; and the severe accident guidelines and severe challenge guidelines procedures used to mitigate severe accidents as required by 10 CFR 50.54(hh). During these walkdowns, the licensee verified that accessible permanent and temporary equipment was available, in the correct physical locations, and properly labeled. The licensee plans additional walkdowns during the next refueling outages of the nonaccessible equipment staged inside the containment buildings. The licensee assumed that permanently installed plant equipment was functional based on inspection. The licensee verified nonpermanently installed equipment referenced in these procedures was verified functional by testing. The licensee documented these actions in Notification 50382443.</p>
	<p>Describe inspector actions taken to confirm equipment readiness (e.g., observed a test, reviewed test results, discussed actions, reviewed records, etc.).</p>
	<p>The inspectors conducted a documentation review to ascertain if the licensee walked down each of the extreme damage mitigation guidelines, the extreme damage guidelines, severe accident guidelines, and severe challenge guidelines.</p> <p>The inspectors completed an independent inspection of the staged nonpermanently installed equipment used in the extreme damage mitigation guidelines, and the extreme damage guidelines. The inspectors also reviewed the past two extreme damage mitigation</p>

		guidelines equipment inventory checks.
		Discuss general results including corrective actions by licensee.
		<p>The licensee verified that the required equipment was available and functional. The following issues were entered into the licensee's corrective action program for evaluation for appropriate corrective actions:</p> <ul style="list-style-type: none"> <li>• Notification 50373903: Portable long term cooling Pump 0-1 would not function when tested; and</li> <li>• Notification 50383106: The licensee was unable to place the necessary temporary hoses from raw water reservoir to the plant due to obstructions created by recent security modifications.</li> </ul> <p>The inspectors verified that the licensee walked down each of the extreme damage mitigation guidelines, the extreme damage guidelines, the extreme damage water management guidelines, severe accident guidelines, and severe challenge guidelines by their documentation review. From their inspection, the inspectors identified no discrepancies with the staged nonpermanently installed equipment used in the extreme damage mitigation guidelines, the extreme damage guidelines, the extreme damage water management guidelines, or in the past two extreme damage mitigation guidelines equipment inventory checks.</p>
Licensee Action		Describe the licensee's actions to verify that procedures are in place and can be executed (e.g., walkdowns, demonstrations, tests, etc.)
b. Verify through walkdowns or demonstration that procedures to implement the		Pacific Gas and Electric verified that the extreme damage mitigation guidelines, the extreme damage guidelines, the extreme damage water management guidelines, severe accident guidelines, and severe challenge guidelines procedures were adequate to implement the B.5.b and 10 CFR 50.54(hh) strategies based on documentation reviews and in-plant walkdowns.

<p>strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable. Licensees may choose not to connect or operate permanently installed equipment during this verification.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>		<p>Describe inspector actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.</p>
		<p>The inspectors reviewed and/or walked down each of the extreme damage mitigation guidelines, the extreme damage guidelines, and severe accident management guidelines. During each of these walkdowns, the inspectors assessed whether procedures were in place and could be used as intended.</p>
		<p>Discuss general results including corrective actions by licensee.</p>
		<p>The inspectors identified that several procedures required manual actions in plant locations that may become inaccessible during some beyond design basis events due to high radiation fields events. The licensee had not performed an assessment of the expected radiation dose at these plant locations. The licensee entered this issue into the corrective action program as Notification 50391455.</p> <p>The inspectors identified that the licensee did not have the ability to implement Procedure OP D-1:V, "Auxiliary Feedwater System Alternate Auxiliary Feedwater Supplies," Revision 21, on both units simultaneously to support mitigation of a postulated earthquake. Procedure OP D-1:V uses the diesel-driven long term cooling pump to provide inventory from the raw water storage tank to the turbine-driven auxiliary feedwater system. The inspectors identified that the procedure and staged equipment only supported make up to one of the Diablo Canyon units. The licensee entered this issue into the corrective action program as Notification 50391943.</p> <p>The inspectors found that in the development of extreme damage mitigation guidelines Procedure EDG-12, "Start Diesel Generator Without DC Power," Revision 0A, the licensee had not considered factors that could limit the effectiveness of the procedure following on extended station blackout event. , including the need for a greater volume of starting air required to start the diesel engines without generator field flash, the potential for longer starting cranking times due to the increase in lube oil viscosity following the loss of preheating, and the need to overcome diesel generator starting air receiver leakage which would be inadequate to start the diesel generator after ten hours if actual leakage occurred</p>



	<p>at the maximum rate of the design acceptance criteria. The licensee entered this issue into the corrective action program as Notification 50391963.</p> <p>The inspectors found that some procedures to cope with beyond design events, such as Procedures EDG-2, "External Spent Fuel Pool Makeup," EDG-3, "Spent Fuel Pool Cooling via Spray," EDG-9, "Use of Fire Engine to Supply Water to Steam Generators," and EDG-6, "Makeup to Condensate Storage Tank," relied on the availability of nonseismically qualified sections of the firewater system for inventory makeup.</p> <p>The licensee identified and entered the following additional issues into the corrective action program:</p> <ul style="list-style-type: none"> <li>• Notification 50383092: Procedure OP K-2A:III, "Alternate Methods of Pressurizing and Filling the Firewater System," included an error associated with direction for aligning the firewater system in the section for the system;</li> <li>• Notification 50382481: Incorrect reference to the positive displacement pump;</li> <li>• Notification 50383104: Motor vehicles may be parked in locations that limit access to valves used to crosstie the firewater loops. The licensee temporary posted the area as no parking; and</li> <li>• Notification 50383766: Procedure change to identify the need for wrenches to open the penetration terminal box.</li> </ul> <p>The inspectors concluded that the procedures were in place and could be used as intended. However, the inspectors plan to conduct further inspection to evaluate the impact of high radiation and worker dose when implementing some of the procedures, the ability to implement one procedure on both units simultaneously, the effects of a prolonged station blackout on starting diesel generators, and the potential unavailability of the nonseismically qualified firewater system for some procedures following the beyond design basis earthquake and/or tsunami. The results of this inspection will be documented in Inspection Report 2011003.</p>
Licensee Action	Describe the licensee's actions and conclusions regarding training and qualifications of operators and support staff.

c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).		The licensee reviewed the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to B.5.b and severe accident management guidelines as required by 10 CFR 50.54(hh).
		Describe inspector actions and the sample strategies reviewed to assess training and qualifications of operators and support staff.
		The inspectors verified the licensee's review of training and qualification by a documentation review and initial training rosters.
		Discuss general results including corrective actions by licensee.
		<p>The licensee identified and entered the following additional issues into the corrective action program:</p> <ul style="list-style-type: none"> <li>• Notification 50383235: All extreme damage mitigation guidelines tasks were not sequenced into the reactor operators training cycle; and</li> <li>• Notification 50383733: Operators have not participated in an exercise or tabletop drill with offsite fire responders and site fire brigade as required by an NRC commitment.</li> </ul> <p>The inspectors identified that the licensee had not established qualifications associated with B.5.b requirements, severe accident management guidelines, or extreme damage mitigation guidelines procedures for all applicable plant personnel. The inspectors observed that initial licensed and nonlicensed operator training programs included lesson plans that discussed these procedures. The continuing training program included extreme damage mitigation guidelines procedure refresher on a 4-year frequency. Also, station firefighter qualification included extreme damage mitigation guidelines procedure training.</p>
Licensee Action		Describe the licensee's actions and conclusions regarding applicable agreements and contracts are in place.

<p>d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>		<p>Pacific Gas and Electric conducted a review of their contracts needed to support actions identified in the extreme damage mitigation guidelines, the extreme damage guidelines, severe accident guidelines, and severe challenge guidelines. Also the licensee reviewed the emergency plan, security plan and fire protection plan to identify if agreements with local and state agencies were current and capable of meeting the conditions needed to mitigate the consequences of a beyond design basis event.</p>
		<p>For a sample of mitigating strategies involving contracts or agreements with offsite entities, describe inspector actions to confirm agreements and contracts are in place and current (e.g., confirm that offsite fire assistance agreement is in place and current).</p>
		<p>The inspectors conducted a documentation review of the agreements to support the licensee's extreme damage mitigation guidelines; and the extreme damage guidelines procedures to evaluate if the agreements were current and in place.</p>
		<p>Discuss general results including corrective actions by licensee.</p>
		<p>Pacific Gas and Electric verified that the contracts needed to support actions identified in the extreme damage mitigation guidelines, the extreme damage guidelines, severe accident guidelines, and severe challenge guidelines procedures were current and adequate to support the required tasks. Also the licensee ensured the agreements in their emergency plan, security plan, and fire protection plan were current and capable of meeting the conditions needed to mitigate the consequences of a beyond design basis event.</p> <p>The licensee had a contractual arrangement with a third party to supply an alternate seawater source for cooling the component cooling water heat exchanger following a B.5.b event. However, contractor would use the state highway system to transport the equipment to the site following a beyond design basis event. The state highway system and plant access roads may not be available following a beyond design basis event. The licensee entered this issue into the corrective action program as Notification 50385040.</p>

		<p>The licensee identified that the memorandum of understanding was not in place with the California National Guard for the contingency to supply diesel fuel to the site when the main road is unavailable. The licensee entered this issue into the corrective action program as Notification 50388838.</p> <p>The inspectors confirmed that the agreements to support extreme damage mitigation guidelines, the extreme damage guidelines, and the extreme damage water management guidelines procedures were current.</p>
Licensee Action		<p>Document the corrective action report number and briefly summarize problems noted by the licensee that have significant potential to prevent the success of any existing mitigating strategy.</p>
e. Review any open corrective action documents to assess problems with mitigating strategy implementation identified by the licensee. Assess the impact of the problem on the mitigating capability and the remaining capability that is not impacted.		<p>The inspectors reviewed the corrective action documents listed in the appendix to assess any additional problems with mitigating strategy implementation. The inspectors did not identify any additional impacts on mitigation capability.</p>

**03.02 Assess the licensee's capability to mitigate station blackout conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to Temporary Instruction 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22," as a guideline. It is not intended that Temporary Instruction 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:**

Licensee Action	Describe the licensee's actions to verify the adequacy of equipment needed to mitigate a station blackout event.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.	Pacific Gas and Electric complied with the station blackout rule using the alternate ac option and has not performed a coping assessment per NUMARC 87-00.  Pacific Gas and Electric verified the availability of equipment required by the station blackout and supporting procedures by plant walkdowns and inspection. The licensee completed testing of nonpermanently installed plant equipment.
	Describe inspector actions to verify equipment is available and useable.
	The inspectors completed a documentation review of the licensee's actions (Notification 50382443). The inspectors also completed a tabletop review and walkdown of portions of Procedures ECA-0.0, "Loss of All AC Power," and EOP ECA 0.2, "Loss of All AC Power With SI Required."
	Discuss general results including corrective actions by licensee.
	The licensee identified and entered the following additional issues into the corrective action program: <ul style="list-style-type: none"> <li>• Notification 50385938: Four 20 foot extension cables were missing from the storage location. These cables are used to provide power to the 24-inch fans. All other cables</li> </ul>

		<p>were available;</p> <ul style="list-style-type: none"> <li>• Notification 50383106: The licensee was unable to run fire hoses from the raw water reservoir to the 115' elevation due to recent security modifications. The licensee's initial review determined that the hoses could be run;</li> <li>• Notification 50382678: One of the fans in the Unit 2 buttress was not functional. The licensee replaced the fan; and</li> <li>• Notifications 50385473 and 50385938: Additional spare cables were needed to support use of the 24-inch fans that would be connected to portable generators. The licensee is planning to revise Procedure CP M-10, Attachment 7.8, to require the spare cables.</li> </ul> <p>The inspectors identified no discrepancies in the required materials through the tabletop review and walkdown of portions of Procedures ECA-0.0, "Loss of All AC Power," and EOP ECA 0.2, "Loss of All AC Power With SI Required."</p>
Licensee Action		Describe the licensee's actions to verify the capability to mitigate a station blackout event.
b. Demonstrate through walkdowns that procedures for response to a station blackout are executable.		Pacific Gas and Electric completed procedure reviews and plant walkdowns to ensure all actions identified in station blackout procedures were valid. The licensee also walked down the time critical operator actions per OP1.ID2, "Time Critical Operator Action," Attachment 1, associated with station blackout to verify these actions were executable.
		<p>Describe inspector actions to assess whether procedures were in place and could be used as intended.</p> <p>The inspectors completed a documentation review of the licensee's actions (Notification 50382443).</p> <p>The inspectors walked down the six diesel generators to verify standby readiness and reviewed the last performance of STP M-9A, "Diesel Engine Generator Routine</p>

		<p>Surveillance Test,” performed on each of the six diesel generators. The inspectors also reviewed the time critical operator actions per OP1.ID2, "Time Critical Operator Action," and Attachment 1, associated with the station blackout event.</p>
		<p>Discuss general results including corrective actions by licensee.</p>
		<p>The licensee identified and entered the following additional issues into the corrective action program:</p> <ul style="list-style-type: none"> <li>• Notification 50383092: Procedural error with OP K-2A:III, "Alternate Methods of Pressurizing and Filling the Firewater System;"</li> <li>• Notification 50385714: Plant operator weekly rounds sheet incorrectly specified greater than 18 bottles of carbon dioxide for emergency purge. Twenty two bottles are needed for a full purge per unit. The licensee has revised the round sheets; and</li> <li>• Notification SAPN 50389011: The manually cross-tied supply headers were not walked down due to confined space restrictions.</li> </ul> <p>Because Pacific Gas and Electric used the alternate ac option to comply with the station blackout rule, the station does not have a coping assessment per NUMARC 87-00. As a result, the station does not have a calculation to predict when core damage would occur during an extended station blackout event. Operator access to important areas of the plant would be limited after core damage occurred. The licensee entered this issue into the corrective action program as Notification 50391455.</p>

**03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design. Refer to Inspection Procedure 71111.01, "Adverse Weather Protection," Section 02.04, "Evaluate Readiness to Cope with External Flooding," as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.**

<p>Licensee Action</p>	<p>Describe the licensee's actions to verify the capability to mitigate existing design basis flooding events.</p>
<p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Pacific Gas and Electric reviewed the plant internal and external flood design bases and identified required mitigation equipment credited in the safety analysis. The licensee verified these flood protection features were part of existing surveillance programs or preventive maintenance plans, and that the equipment had been tested or inspected in accordance with the program. Internal flood protection features included walls, penetrations, drains, level switches, sump pumps, curbs, watertight seals, and drain line check valves. External flood control features include topography, culverts, and drains. The licensee walked down all flood protection features credited in the design basis. The licensee also tested the portable pump used to clear diesel fuel oil trenches.</p>
	<p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p>
	<p>The inspectors completed a documentation review of the licensee's actions (Notification 50382443). The inspectors also reviewed the design basis internal and external flood protection using the Final Safety Analysis Report Update and engineering documents. The inspectors performed flood protection walkdowns of the auxiliary saltwater pump vaults, the diesel generator and electrical rooms, and component cooling water area of the auxiliary building to ensure internal and external flood mitigation features were in place. The inspectors looked for the vulnerability to flooding of important safety</p>



	<p>equipment from the postulated failure of nonseismically qualified water sources during an earthquake.</p> <p>The inspectors also reviewed the past surveillance test results of the auxiliary saltwater check valves to ensure protection against high ocean water levels.</p>
	<p>Discuss general results including corrective actions by licensee.</p> <p>The licensee identified and entered the following additional issues into the corrective action program:</p> <ul style="list-style-type: none"> <li>• Notifications 50367930, 50387864, and 50372771: Doors B20, B19, B28, B39-2, B43-2, B20-2, and B19-2 would not self-latch due to the ventilation flow in the auxiliary building. The licensee plans to perform a ventilation study to determine how to best balance the ventilation. The licensee plans to complete corrective actions by December 29, 2011.</li> <li>• Notification 50387873: The latching mechanism on Door 285-2 was degraded. The licensee plans to complete corrective actions by November 4, 2011.</li> </ul> <p>The inspectors noted that the licensee had installed a sixth diesel generator in 1992 to comply with the alternate ac requirements of the station blackout rule. However the station blackout diesel generator was the same design and located in the same general location as the other five standby diesel generators. All six of the diesel generators were air cooled and open to the 85-foot plant elevation. The inspectors concluded the alternate ac and other standby diesel generators could be susceptible to a common made failure because of the similarities in design and location.</p> <p>The inspectors did not identify any additional impacts on mitigation capability.</p>

**03.04 Assess the thoroughness of the licensee’s walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment’s function could be lost during seismic events possible for the site. Assess the licensee’s development of any new mitigating strategies for identified vulnerabilities (e.g., entered it in to the corrective action program and any immediate actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use Inspection Procedure 71111.21, “Component Design Basis Inspection,” Appendix 3, “Component Walkdown Considerations,” as a guideline to assess the thoroughness of the licensee’s walkdowns and inspections.**

<p>Licensee Action</p>	<p>Describe the licensee’s actions to assess the potential impact of seismic events on the availability of equipment used in fire and flooding mitigation strategies.</p>
<p>a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Pacific Gas and Electric reviewed surveillance test procedures for hose reel stations, sprinkler/deluge system visual inspections, and fire extinguisher inspections to determine what equipment was credited for fire protection. The licensee inspected hose reel stations for required equipment, tight connections, and accessibility. The sprinkler/deluge system main fire system piping hose reel headers, water spray headers, sprinkler system headers and water spray nozzles, and sprinkler heads were visually inspected. Seismic evaluation inspection included visual inspection for piping integrity, hangers, and supports. In addition, visual inspections were performed to ensure that deluge water spray nozzles and wet pipe sprinkler head flow are not obstructed, nozzles are aimed in the direction of system design, and deluge spray nozzle openings are not blocked. The fire extinguishers in the power block were inspected to verify they were properly installed and current with respect to service dates. These inspections provided assurance that the equipment’s function would not be lost during seismic events.</p> <p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p>

	<p>The inspectors evaluated the locations of fire protection piping seismic class breaks. The inspectors assessed the ability to mitigate a Fukushima Daiichi type event given the unavailability of nonseismically qualified fire protection systems to mitigate the event and the potential of internal flooding as a result of the failure of these systems.</p> <p>Discuss general results including corrective actions by licensee. Briefly summarize any new mitigating strategies identified by the licensee as a result of their reviews.</p> <p>The licensee identified and entered the following additional issues into the corrective action program:</p> <ul style="list-style-type: none"> <li>• Notification 50389388: Equipment racks were not secured to the storage container;</li> <li>• Notification SAPN 50389332: The main structural members of the fire truck storage building may yield during an event. Debris may create a hazard/obstacle for accessing the fire truck;</li> <li>• Notification SAPN 50389333: Following an earthquake the check valves in the diesel fuel oil vault could fail which could lead to flooding in the vault; and</li> <li>• Notification SAPN 50389414: Although the plant drain system is not credited for flood mitigation, it is an available feature. A walkdown of the plant drains (excluding those in high radiation areas) identified three drains that were partially blocked and three drains with welded covers.</li> </ul> <p>The inspectors identified that the beyond design basis mitigation for loss of the station ultimate heat sink pumps included a replacement pump to provide seawater to the component cooling heat exchangers by a commercial contractor. However, the inspectors concluded that the contractor may not be capable of transporting the equipment to the site following an earthquake and tsunami. The licensee entered this issue into the corrective action program as Notification 50385040.</p>
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### **EXIT MEETING SUMMARY**

The inspectors presented the inspection results to Mr. J. Becker, Site Vice President, and other members of licensee management at the conclusion of the inspection on April 26, 2011. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

J. Becker, Site Vice President  
T. Grebel, Regulatory Services  
M. Somerville, Manager, Radiation Protection

### **LIST OF DOCUMENTS REVIEWED**

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

#### **03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events**

<b><u>NUMBER</u></b>	<b><u>TITLE</u></b>	<b><u>REVISION / DATE</u></b>
EDMG EDG-14	EDMG Equipment Annual Inventory	0
EDMG EDG-1	ERO Guidance for Extensive Plant Damage Mitigation	0
EDMG EDG-2	External Spent Fuel Pool Makeup	2
EDMG EDG-3	Spent Fuel Pool Cooling via Spray	2
EDMG EDG-6	Makeup Up to Condensate Storage Tank,	1
EDMG EDG-7	Manually Depressurize the Steam Generators to Minimize Reactor Coolant System Inventory Loss	0
EDMG EDG-8,	Manual Operations to Control Steam Generator Water Level	1A
EDMG EDG-9	Use of Fire Engine to Supply Water to Steam Generators	0
EDMG EDG-10,	Containment Flooding with Portable Pump	0
EDMG EDG-11	Vent Containment,	0
EDMG EDG-12	Start Diesel Generator Without DC Power	0A
EDMG EDG-14	EDMG Equipment Annual Inventory	0A
SAMG SAG-1	Injection into the Steam Generators	2

SAMG SAG-2	Depressurizing the Reactor Coolant System	1
SAMG SAG-3	Inject Into the Reactor Coolant System	2
SAMG SAG-4	Inject Into Containment	2
SAMG	Control of Containment Vacuum,	December 12, 1997
SAMG	Reduce Containment Hydrogen	December 26, 1997
OP A22,	Spent Fuel Pool Abnormalities,	23B
Action Request A0688530	Burton's Fire Inc, Fire Truck Pump Curve	
NEI 06-12	B.5.b Phase 2 & 3 Submittal Guideline	December 2006
	DCPP B.5.b Program Technical Basis	December 2007
Course R07	Continued Operator Training – B.5.b Response and Implementation Guidelines	September 2007
SCC-4	Control Containment Vacuum, Background Information for Westinghouse Owners Group Severe Accident Management Guidance	June 1994
3.10	Start Up Test - Long Term Cooling Water Supply From Raw Water Reservoir	March 1884
EDMG EDG-14	Equipment Annual Inventory, Completed on December 14, 2009	0
EDMG EDG-14	Equipment Annual Inventory, Completed on December 11, 2010	0
Order 64018333	Long Term Cooling Water Pump Hose Test, Completed January 24, 2010	0
STP M-80D	Fire Hose Hydrostatic Testing	1
STP P-24	Testing of the Portable Long Term Cooling Pumps	22
Order 64054924	Testing of the Portable Long Term Cooling Pump P-02, completed on February 13, 2011	0
Order 64060709	Testing of the Portable Long Term Cooling Pump P-03, completed on February 20, 2011	0
Action Request A0576110	DG 1-3 Failed to Start – No Field Flash	February 24, 2003

### 03.02 Assess the licensee's capability to mitigate station blackout conditions

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
STP M-9A	Diesel Engine Generator Routine Surveillance Test	86
OP C-2:II	Main Steam and Steam Dump Systems	
ECA-0.0	Loss of All AC Power	26
EOP ECA 0.1	Loss of All AC Power Without SI Required	18
EOP ECA 0.2	Loss of All AC Power With SI Required	15
OP K-2A:III	Alternate Methods of Pressurizing and Filling the Firewater System	10
OP D-1:V	Auxiliary Feedwater System – Alternate Auxiliary Feedwater Supplies	21
OP AP-26,	Loss of Offsite Power	13
OP AP-17	Loss of Charging	28
EOP E-0.2,	Natural Circulation Cooldown	23
OP J-4C:III	Generator Hydrogen System	26
STP P-24,	Testing of the Portable Long term Cooling Pumps	22
Drawing 107722, Sheet 6	Hydrogen Inner Cooler Turbine Generator	35
Drawing 107722, Sheet 4	Seal Oil Supply Emergency Sources	49
911101-0	HAAP Simulations of Key Plant damage STAYE HAYDI	January 1992
DCM T-42	Station Blackout	2
DCM S-63	4 kV System	1
DCM S-62	12 kV System	1
DCM S-21	Diesel Engine System	Revision 2
DCM T-17	Long Term Cooling Water	Revision 5
Order 64058790-0100	DG 1-1, STP M-9A, Diesel Engine Generator Routine Surveillance Test, completed February 1, 2011	Revision 86

Order 64059088	DG 1-2, STP M-9A, Diesel Engine Generator Routine Surveillance Test, completed February 9, 2011	Revision 86
Order 64059725	DG 1-3, STP M-9A, Diesel Engine Generator Routine Surveillance Test,, completed February 9, 2011	Revision 86
Order 64058861	DG 2-1, STP M-9A, Diesel Engine Generator Routine Surveillance Test, completed February 9, 2011	Revision 86
Order 64058741	DG 2-2, STP M-9A, Diesel Engine Generator Routine Surveillance Test, completed February 3, 2011	Revision 86
Order 64059733	DG 2-3, STP M-9A, Diesel Engine Generator Routine Surveillance Test, completed February 18, 2011	Revision 86
Calculation 369-DC	Vital 125 VDC System Calculation for PRA System Analysis (Station Blackout)	Revision 1
Calculation M-1103	Head Loss Calculation – Fire Water to Fuel Handling Building	Revision 1

**03.03 Assess the licensee’s capability to mitigate internal and external flooding events required by station design**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OP AP-10	Loss of Auxiliary Salt Water	9
CP M-10	Fire Protection of Safe Shutdown Equipment	21B
OP D-1:V	Auxiliary Feedwater System – Alternate Auxiliary Feedwater Supplies	21
OP K-2A:III	Alternate Methods of Pressurizing and Filling the Fire water System	10
OP AP-11	Malfunction of Component Cooling Water System	25
DCM T-12	Flooding, Missiles, HELB, MELB	1
DCM T-2	Auxiliary Building	2
DCM T-1A	Containment Structure Exterior	1
DCM T-9	Wind, Tornado and Tsunami	1
DCM T-5	Structural Design of the Intake Structure	1
DCM T-10	Seismic Qualification of Equipment	0



Order 64018242	V 18 Group 2 Check Valve SW-1-988, completed June 2, 2010	0
Order 64029748	V 18 Group 2 Check Valve SW-1-987, completed September 2, 2010	0
STP V-18M	Check Valve Inspection – High Maintenance Valves	10

#### NOTIFICATIONS

##### NUMBER

50314342	50382693	50383269	50385938
50323053	50382709	50383276	50387864
50323054	50382750	50383362	50387873
50367930	50382751	50383383	50387886
50370064	50382752	50383398	50388667
50370065	50382753	50383420	50388838
50370066	50382754	50383531	50388978
50370858	50382755	50383678	50388979
50371590	50382756	50383709	50389010
50372771	50382757	50383733	50389101
50373903	50382758	50383766	50389243
50374051	50382759	50383780	50389246
50382091	50382760	50383933	50389332
50382145	50382951	50384048	50389333
50382157	50383091	50384162	50389388
50382271	50383092	50384275	50389414
50382277	50383094	50385000	50389523
50382278	50383104	50385040	50389924
50382481	50383106	50385055	50389981
50382590	50383133	50385278	50389982
50382637	50383235	50385473	
50382678	50383268	50385714	